

4386.77706

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Kenji Yamane
Serial No.: 10/532,430
Conf. No.: 1792
Filed: April 25, 2005
For: PNEUMATIC TIRE

Art Unit: 1791
Examiner: Maki, Steven D.

APPELLANT'S BRIEF ON APPEAL UNDER 37 C.F.R. §41.37

James K. Folker
GREER, BURNS & CRAIN, LTD.
300 South Wacker Drive
Suite 2500
Chicago, Illinois 60606
(312) 360-0080

Date: December 9, 2008

TABLE OF CONTENTS

(i) REAL PARTY IN INTEREST	2
(ii) RELATED APPEALS AND INTERFERENCES	3
(iii) STATUS OF CLAIMS.....	4
(iv) STATUS OF AMENDMENTS.....	5
(v) SUMMARY OF CLAIMED SUBJECT MATTER.....	6
(vi) GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL	8
(vii) ARGUMENT	9
I. THE REJECTION OF CLAIMS 1, 3 AND 4 UNDER 35 U.S.C. §103 AS BEING UNPATENTABLE OVER THE HEINEN REFERENCE IN VIEW OF THE SHESTERKIN REFERENCE AND FURTHER IN VIEW OF THE TOMIOKA ET AL. REFERENCE OR THE WILLIAMS REFERENCE AND OPTIONALLY FURTHER IN VIEW OF JP '509 SHOULD BE REVERSED.....	9
A. The Heinen Reference Fails To Disclose Circumferential Grooves With Line Portions Composed Of A Plurality Of Ridges Or Recesses That Are Inclined From 10° to 35° With Respect To The Tire Circumferential Direction	
i. Independent Claim 1 and assoicated Dependent Claims 3 and 4	9
B. One Of Ordinary Skill in the Art Would Not Have Modified the Heinen Reference Such That Its Peaks/Valleys Form a Vortex Flow Because Heinen Teaches Using Its Peaks/Valleys to Disrupt Eddies or Vorticies	
i. Independent Claim 1 and assoicated Dependent Claims 3 and 4	12
C. The Shesterkin Reference Does Not Support Modifying The Peaks/Valleys Of Heinen To “Form a Vortex Flow” By Being Angled Within The Claimed Range Of 10° to 35°	
i. Independent Claim 1 and assoicated Dependent Claims 3 and 4	16

D.	The Tomioka Et Al. Reference And The Williams Reference Do Not Disclose Or Suggest Modifying the Angular Range Of The Peaks/Valleys Of The Heinen Reference To Be Within The Claimed Range of 10-35°, Nor Were These Two References Relied Upon For This Feature	
i.	Independent Claim 1 and Dependent Claims 3 and 4.....	19
E.	JP ‘509 Does Not Disclose Or Suggest Modifying The Peaks/Valleys Of Heinen to Be Within The Claimed Range Of 10-35°	
i.	Independent Claim 1 and Dependent Claims 3 and 4.....	20
II.	CONCLUSION.....	23
(viii)	CLAIMS APPENDIX.....	A-1
(ix)	EVIDENCE APPENDIX	B-1
(x)	RELATED PROCEEDINGS APPENDIX.....	C-1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Kenji Yamane
Serial No.: 10/532,430
Conf. No.: 1792
Filed: April 25, 2005
For: PNEUMATIC TIRE

Art Unit: 1791
Examiner: Maki, Steven D.

APPELLANT'S BRIEF ON APPEAL UNDER 37 C.F.R. §41.37

Mail Stop Appeal Brief - Patents
Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Dear Sir:

This Appeal Brief is in support of Applicant's Notice of Appeal dated November 10, 2008, from the final rejection dated July 9, 2008.

APPEAL BRIEF

(i) REAL PARTY IN INTEREST

The real party in interest in this case is The Yokohama Rubber Company, Ltd., 36-11, Shimbashi 5-Chome, Minato-ku, Tokyo, 105-8685, Japan. An Assignment of the Application to the real party of interest has been recorded on Reel 017293, Frame 0218, on April 25, 2005.

(ii) RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences that will directly affect, be directly affected by, or have a bearing on, the Board's decision in this pending appeal.

(iii) STATUS OF CLAIMS

This Application was originally filed with five (5) claims, numbered as Claims 1-5. During prosecution, Claims 2 and 5 were cancelled, without prejudice. Additionally, new Claim 6 was added during prosecution, and then subsequently cancelled, without prejudice. Pending Claim 1 is an independent claim, and pending dependent Claims 3 and 4 both refer back to independent Claim 1. Prior to this appeal, Claims 1, 3 and 4 were rejected, and no claims have been allowed. The rejection of Claims 1, 3 and 4 is herein appealed

(iv) STATUS OF AMENDMENTS

Response D, filed on September 10, 2008, in response to the July 9, 2008 Final Office Action, has been entered and acted upon, as indicated by the Examiner in the October 14, 2008 Advisory Action.

(v) SUMMARY OF CLAIMED SUBJECT MATTER

The claims under appeal (Claims 1, 3 and 4) are reproduced below, with bracketed insertions referring to the associated portions of the written description and/or drawings of the above-named application:

Claim 1. A pneumatic tire [page 4, paragraph 0016, line 1] comprising:
a plurality of circumferential grooves extending in a tire circumferential direction in a tread surface [page 4, paragraph 0017, lines 1-4; Figure 1, grooves 2, tread surface 1] having a width and a circumferential center [Figures 1 and 4, grooves 2, width W];

a plurality of lateral grooves extending from the circumferential grooves away from the circumferential center of the tread surface [page 4, paragraph 0017, lines 3-4; Figure 1, lateral grooves 5], the lateral grooves being open at their distal ends from the circumferential center of the tread surface and provided intermittently in the tire circumferential direction [Figure 1, lateral grooves 5]; and

line portions provided in a wall face of the circumferential grooves [page 4, paragraph 0017, lines 4-8; Figure 2, line portions 4], the line portions being composed of a plurality of ridges or recesses [page 5, paragraph 0019, lines 1-2] that are inclined from 10° to 35° with respect to the tire circumferential direction [pages 4-5, paragraph 0018, lines 1-5; Figure 3, incline angle α];

wherein water can flow in the circumferential grooves along the line portions to form a vortex flow, and can be discharged from the circumferential grooves [pages 4-5,

paragraph 0018, lines 1-3; page 6, paragraph 0022; page 6, paragraph 0023, lines 5-18; Figure 6, vortex flow within circular grooves 2 along line portions 4 shown by curved arrows], and

wherein the line portions are provided in a range of not less than 50% of the wall face of the circumferential grooves in a cross section of the circumferential grooves orthogonal to the groove longitudinal direction [pages 5-6, paragraph 0021, lines 5-8; Figures 2-4, line portions 4, wall face 3, circumferential grooves 2].

Claim 3. The pneumatic tire according to claim 1, wherein a height of the line portions is not smaller than 0.3 mm and is not more than 20% of each of a width and depth of the circumferential grooves [page 5, paragraph 0019, lines 4-9; Figures 5A-5C, height h, line portions 4; Figure 4, width W, depth H, circumferential grooves 2].

Claim 4. The pneumatic tire according to claim 1, wherein a pitch interval of the line portions is 1.5 to 8.0 mm [page 5, paragraph 0020; Figures 5A-5C, pitch interval P, line portions 4].

(vi) GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

I. Whether Claims 1, 3 and 4 are unpatentable under 35 U.S.C. §103 over United States Patent No. 6,415,835 to Heinen (“the Heinen reference”) in view of United States Patent No. 2,268,344 to Shesterkin (“the Shesterkin reference”) and further in view of United States Patent No. 5,211,779 to Tomioka et al. (“the Tomioka et al. reference”) or United States Patent No. 4,299,264 to Williams (“the Williams reference”) and optionally further in view of JP 2001-287509 (“JP ‘509”).

(vii) ARGUMENT

I. THE REJECTION OF CLAIMS 1, 3 AND 4 UNDER 35 U.S.C. §103 AS BEING UNPATENTABLE OVER THE HEINEN REFERENCE IN VIEW OF THE SHESTERKIN REFERENCE AND FURTHER IN VIEW OF THE TOMIOKA ET AL. REFERENCE OR THE WILLIAMS REFERENCE AND OPTIONALLY FURTHER IN VIEW OF JP '509 SHOULD BE REVERSED

Applicant appeals the Examiner's rejection of Claims 1, 3 and 4. As discussed below, the §103 rejection of Claims 1, 3 and 4 is improper because the cited references fail to disclose or suggest all of the claimed features of the present invention. More specifically, the cited references, alone or in combination, fail to disclose or suggest a pneumatic tire including, *inter alia*, circumferential grooves with "line portions provided in a wall face of the circumferential grooves, the line portions being composed of a plurality of ridges or recesses that are inclined from 10° to 35° with respect to the tire circumferential direction; wherein water can flow in the circumferential grooves along the line portions to form a vortex flow, and can be discharged from the circumferential grooves," as defined in independent Claim 1.

- A. The Heinen Reference Fails To Disclose Circumferential Grooves With Line Portions Composed Of A Plurality Of Ridges Or Recesses That Are Inclined From 10° to 35° With Respect To The Tire Circumferential Direction
- i. Independent Claim 1 and associated Dependent Claims 3 and 4

Applicant respectfully submits that the Heinen reference fails to disclose or suggest a pneumatic tire that includes, *inter alia*, a plurality of circumferential grooves with "line portions provided in a wall face of the circumferential grooves, the line portions being

composed of a plurality of ridges or recesses that are inclined from 10° to 35° with respect to the tire circumferential direction,” as recited in independent Claim 1.

One example of an embodiment of the pneumatic tire defined in Claim 1 is shown in Applicant’s Figures 1-4. As can be seen in Applicant’s Figure 1, the tire includes a plurality of circumferential grooves 2 and a plurality of lateral grooves 5 extending from the circumferential grooves away from the circumferential center of the tread surface. Applicant’s Figures 2-4 show one example of the claimed “line portions” 4, which are “provided in a wall face of the circumferential grooves [2],” with “the line portions being composed of a plurality of ridges or recesses.” Further, as can be seen in Applicant’s Figures 2 and 3, the ridges or recesses of the line portions 4 are “inclined from 10° to 35° with respect to the tire circumferential direction,” as indicated by angle α of Applicant’s Figure 3.

In contrast, the Heinen reference does not disclose a pneumatic tire with circumferential grooves that include line portions (i.e., ridges or grooves) that are inclined from 10° to 35° with respect to the tire circumferential direction, as correctly acknowledged by the Examiner on page 9 (line 4) of the July 9, 2008 Final Office Action (“Heinen does not recite an angle of 10 degrees to 35 degrees.” (internal quotations omitted)).

Instead, even assuming *arguendo* that the Examiner’s interpretation of a somewhat confusing portion of the Heinen reference is correct, this reference discloses, at best, grooves with alternating peaks and valleys that are skewed with respect to the circumferential direction by between 45° and 90°, and not skewed in the claimed range of between 10° and 35°. More specifically, column 5 (line 56) through column 6 (line 9) of the

Heinen reference recites the following:

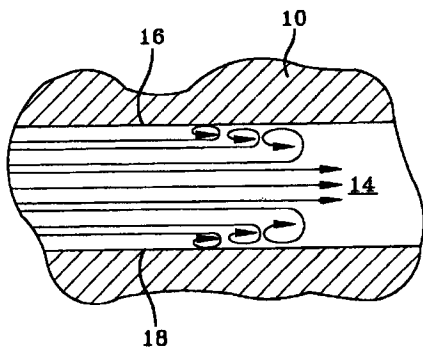
“The groove 14, in the preferred embodiment, has a depth defined by an average distance from the external surface 12 of the tread 10 to the bottom surface 20. A median plane bisects the channel formed by the respective surfaces of the groove 14. An imaginary line or arc is located on the median plane within the depth of the groove 14. If the groove runs circumferentially, then the imaginary arc will follow the curvature of the tire. At least half of the valleys 24 of the respective surface containing the peaks 22 and the valleys 24 following imaginary lines that are skewed with respect to the median plane line or arc by an angle in the range of from 45 degrees to 90 degrees. In the preferred embodiment, the valleys following imaginary lines that are skewed with respect to the median plane line or arc by an angle of 90 degrees. This angle measured by transposing each respective line or arc into the same plane and measuring the angle at the intersection of the respective lines.”

Initially, Applicant does not concede that the skew angle of Heinen is measured in the same manner as that of Applicant's Claim 1 (such as shown by, for example, angle α of Applicant's Figure 3). Instead, the skew angle referred to by Heinen may actually be measured with respect to a different frame of reference than that of the present invention (such as being taken through a plane perpendicular to the tread surface, instead of parallel to the tread surface as in the present invention).

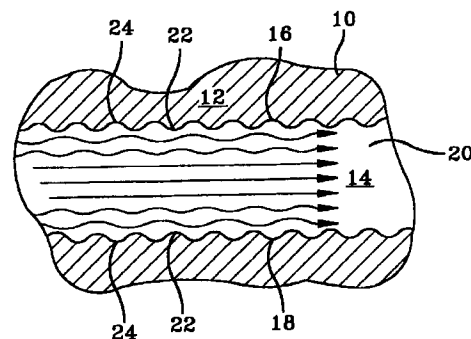
However, even assuming *arguendo* that the Examiner's interpretation of the frame of reference for the skew angles of Heinen is correct, and that Heinen's frame of reference does coincide with the frame of reference of the present invention, the 45° to 90° range of Heinen is not the same as, and does not overlap, the 10° to 35° range defined in Applicant's independent Claim 1.

- B. One Of Ordinary Skill in the Art Would Not Have Modified the Heinen Reference Such That Its Peaks/Valleys Form a Vortex Flow Because Heinen Teaches Using Its Peaks/Valleys to *Disrupt* Eddies or Vortices
- i. Independent Claim 1 and associated Dependent Claims 3 and 4

Applicant respectfully submits that one of ordinary skill in the art would not have modified the peaks/valleys of the Heinen reference so that they are “inclined from 10° to 35°” in order to “form a vortex flow” (emphasis added), as defined in independent Claim 1, because the peaks/valleys of the Heinen reference are disclosed as being intended to disrupt eddies or vortices. More specifically, reproduced below are Figures 1 and 2 of the Heinen reference, where Figure 1 is prior art to Heinen and shows turbulent flow that “contains vortices,” and Figure 2 shows how the peaks 22 and valleys 24 of Heinen “disrupt the eddies or vortices.” See Heinen, col. 1 (lines 61-62) and col. 4 (lines 34-36, lines 52-54).



(HEINEN)
FIG-1
(PRIOR ART)



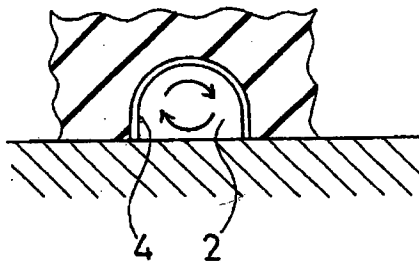
(HEINEN)
FIG-2

Additionally, other portions of the Heinen reference also describe how the purpose of the peaks and valleys is to disrupt the vortices. See e.g., Heinen, col. 3 (lines 32-34 and 45-46) (describing that invention can help “reduce the undesirable effects of the

eddies,” and defines an eddy as “a vortexlike motion of a fluid running contrary to the main current”); col. 4 (lines 34-36 and 54-56)(describes peaks and valleys as “eddy breakup devices” and states that “The peaks 22 and valleys 24 disrupt the eddies by disrupting the tangential flow and the reverse flow regions of the eddies”); col. 6 (lines 63-64) (“the series of peaks and valleys disrupt eddies or vortices along the side surface of the groove.”).

In contrast, in the instant invention of independent Claim 1 and associated dependent Claims 3 and 4, the purpose of the claimed “line portions” (i.e., the ridges or recesses) is to “form a vortex flow,” as also recited in Claim 1. Applicant’s Figure 7, which is reproduced below, shows how line portions 4 on circumferential groove 2 forms a vortex flow (represented by arrows), as described in Applicant’s Specification on pages 6-7 (paragraphs 0023-0024).

Fig.7



Additionally, various other portions of Applicant’s Specification also disclose how the line portions within the circumferential grooves operate to form a vortex flow, which vortex flow enables more water to be discharged from the groove. *See e.g.*, page 3, paragraph 0007, lines 1-3 (“water having flowed into the groove flows along the line

portions, which are formed in the wall face of the groove and spirally arranged, and forms a vortex flow”); page 3, paragraph 0007, lines 9-15 (“since the water progressing within the groove while forming the vortex flow moves toward the center position of the groove space while swirling, thereby the contact resistance between water and the wall face of the groove is significantly reduced, and the discharging action is assisted as a result”); pages 4-5, paragraph 0018 (lines 1-7) (“It is preferable that the line portions 4 formed in the wall face of the groove 2 [have] an inclined angle α of 10 to 60 degrees with respect to the longitudinal direction as shown in Figure 3, so that water having flowed into the groove forms vortices to easily flow. When this inclined angle α is out of the above range, the effect of creating a vortex flow is insufficient.”); and page 6, paragraph 0022, (lines 1-6) (“In the pneumatic tire provided with the line portions 4 in the side wall 3 of the groove 2 extending in the circumferential direction as described above, water flowed into the groove 2 flows along the line portions 4 spirally arranged to form a vortex flow and is efficiently discharged the groove 2, for example, when travelling in the rain.”).

In summary, Applicant respectfully submits that it has been shown above how the Heinen reference teaches disrupting vortex flow, while the present Specification and independent Claim 1 both recite forming vortex flow, which is the opposite of that taught in Heinen. Accordingly, Applicant respectfully submits that the Heinen reference teaches away from any modifications that would form vortex flow. *See e.g., In re Gurley*, 27 F.3d. 551, 553 (Fed. Cir. 1994) (“A reference may be said to teach away when a person of ordinary skill in the art, upon reading the reference, would be discouraged from following the path set out

in the reference, or would be lead in a direction divergent from the path that was taken by Applicant.”). In the instant application, forming vortex flow, as defined in Claim 1, is divergent from the teaching of the Heinen reference, which is to disrupt vortexes. Accordingly, under the definition of a teaching away provided by the Federal Circuit, Applicant respectfully submits that Heinen reference teaches away from any modification that would form vortex flow.

Thus, for at least this reason, Applicant respectfully submits that one of ordinary skill in the art would not modify the tire of the Heinen reference so that it includes circumferential grooves with line portions therein configured such that “water can flow in the circumferential grooves along the line portions to form a vortex flow,” as defined in independent Claim 1.

Further, Applicant respectfully submits that due to the teaching away discussed above, one of ordinary skill in the art would not have modified the tire of the Heinen reference to include line portions composed of a plurality of ridges or recesses that are inclined from 10 to 35 degrees with respect to the tire circumferential direction, as defined in independent Claim 1. As pointed out by the Examiner, the Heinen reference teaches inclining the ridges/recesses between 45 and 90 degrees (assuming *arguendo* that Heinen uses the same frame of reference as that defined in Applicant’s Claim 1). However, as mentioned above, one of the principles of operation of the tire of Heinen is disrupting vortex creation. Applicant respectfully submits that one of ordinary skill in the art would not have chosen the incline angle to be between 10 and 35 degrees in a configuration that would form

vortex flow, because doing so would change the principle of operation of the tire of the Heinen reference (namely from operating to disrupt vortex flow to operating to form vortex flow, which is the exact opposite). *See e.g., In re Ratti*, 270 F.2d 810 (CCPA 1959); MPEP §2143.01(VI) (“The Proposed Modification Cannot Change The Principle of Operation of A reference”). Thus, because Applicant respectfully submits that the proposed modification of the tire of Heinen would change the principle of operation of the Heinen reference, Applicant respectfully submits that one of ordinary skill in the art would not have made the modification proposed by the Examiner. Accordingly, for at least this reason also, Applicant respectfully requests the withdrawal of this §103 rejection of independent Claim 1 and associated dependent Claims 3 and 4.

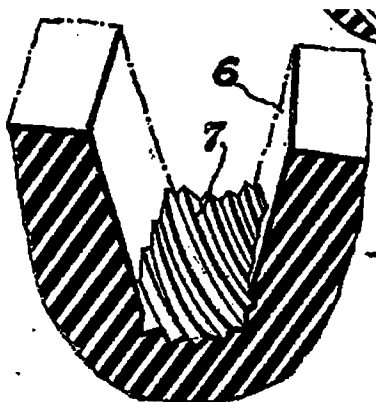
C. The Shesterkin Reference Does Not Support Modifying The Peaks/Valleys Of Heinen To “Form a Vortex Flow” By Being Angled Within The Claimed Range Of 10° to 35°.

i. Independent Claim 1 and Associated Dependent Claims 3 and 4.

Applicant respectfully submits that the Shesterkin reference does not overcome the teaching away discussed in Section B above because, among other things, the Shesterkin reference is silent regarding any effect its ridges may have on water flow. More specifically, the Shesterkin reference does not disclose that water flows in the circumferential grooves along line portions to form a vortex flow, as recited in Applicant’s Claim 1. Thus, because the ridges within the grooves of the Shesterkin reference are not disclosed as being related to altering water flow, Applicant respectfully submits that this reference does not provide the

necessary reason for modifying the angle of the peaks/valleys of the Heinen reference to be within the claimed range of 10 to 35 degrees, as recited in independent Claim 1.

Instead of being related to water flow, the Shesterkin reference discloses grooves that extend circumferentially around the tire, with ridges that are provided to limit the length of cracks that can form within the grooves. *See e.g.*, Shesterkin, page 1, col. 1, lines 40-45. More specifically, the Shesterkin reference discloses grooves 6 that include ridges 7, that are only formed in the base portion (as shown in Shesterkin's Figure 4, below), which serve to direct the any cracks to the sides of the groove, where the cracks cease to grow further due to the thickness of the sides of the groove. *See* Shesterkin, page 1, col. 2 (line 47) through page 2, col. 1 (5).



Further, the Shesterkin reference also discloses that ridges 7 are preferably angled “of the order of 45 degrees” or angled by “at least 20 degrees,” with respect to the direction of the grooves, and that they may also be perpendicular to the groove. *See* Shesterkin, page 1, col. 2 (lines 27-35); and page 2, col. 1 (lines 16-20).

However, Applicant respectfully submits that Shesterkin does not support modifying the incline angle of the peaks/valleys of Heinen to a value within the claimed range of 10° to 35° to form a vortex flow because the ridges of Shesterkin are not for the same purpose as the peaks/valleys of Heinen. More specifically, the ridges of Shesterkin are for limiting the growth of cracks, while the peaks/valleys of Heinen are for disrupting vortex formation.

Further, due to the different purpose of the ridges of Shesterkin from the purpose of the peaks/valleys of Heinen (crack limiting vs. vortex disruption), the structure of the ridges of Shesterkin differs from that of the peaks/valleys of Heinen. For example, the ridges of Shesterkin are only found in the base of the groove, and not in the sides of the groove, so that the sides of the groove can act to terminate the growth of cracks within the groove. In contrast, in Heinen, the peaks/valleys extend up the sides of the grooves to direct water flow in manner that disrupts vortex formation.

Thus, even assuming *arguendo* that one of ordinary skill in the art would have modified the structure of the grooves of Heinen based on Shesterkin, the modification would have also included limiting the extent of the peaks/valleys of Heinen so that they do not extend up the sides of the grooves. Otherwise, the peaks/valleys would not perform the

function taught by Shesterkin, which is to allow the sides of the grooves to terminate the growth of cracks directed along the peaks/valleys at the base of the grooves. However, by limiting the peaks/valleys to the base of the groove, and not having them extend up the wall surfaces, the following language of independent Claim 1 is not satisfied: “wherein the line portions are provided in a range of not less than 50% of the wall face of the circumferential grooves in a cross section of the circumferential grooves orthogonal to the groove longitudinal direction.”

Accordingly, for at least the reasons discussed in this section, Applicant respectfully submits that one of ordinary skill in the art would not have modified the angle of the peaks/valleys of Heinen to be within the claimed range of 10-35° in light of Shesterkin, or even if the peaks/valleys were modified to be within the claimed range, another feature defined in Claim 1 would not be satisfied (the feature defining that the line portions “are provided in a range of not less than 50% of the wall face of the circumferential grooves.”).

- D. The Tomioka Et Al. Reference And The Williams Reference Do Not Disclose Or Suggest Modifying the Angular Range Of The Peaks/Valleys Of The Heinen Reference To Be Within The Claimed Range of 10-35°, Nor Were These Two References Relied Upon For This Feature.
- i. Independent Claim 1 and Dependent Claims 3 and 4

Applicant respectfully submits that neither the Tomioka et al. reference nor the Williams reference disclose or suggest modifying the angle of the peaks/valleys of the Heinen reference to be within the claimed range of 10-35°, as recited in independent Claim 1.

Further, these two secondary references were not relied upon for this feature by the Examiner. Instead, Tomioka et al. and Williams were relied upon by the Examiner for a different feature (the inclusion of lateral grooves). *See e.g.*, July 9, 2008 Final Office Action, page 11, lines 6-17. Accordingly, as Tomioka et al. and Williams do not disclose or suggest angled peaks/valleys within circumferential grooves, Applicant respectfully submits that these references do not remedy the deficiencies discussed above in Sections A through C.

- E. JP ‘509 Does Not Disclose Or Suggest Modifying The Peaks/Valleys Of Heinen to Be Within The Claimed Range Of 10-35°
 - i. Independent Claim 1 and associated Dependent Claims 3 and 4

The Examiner “optionally” included the JP ‘509 reference in the §103 rejection of independent Claim 1 and associated dependent Claims 3 and 4. *See* July 9, 2008 Final Office Action, page 7, lines 7-10. More specifically, on page 10 (lines 15-21) of the Final Office Action, the Examiner asserts that JP ‘509 teaches that “vortex flow accompanies holding down of generation of random eddies,” and that JP ‘509 “constitutes evidence that Heinen’s peaks and valleys are capable of forming vortex flow.” However, as set forth below, even assuming *arguendo* that the Examiner’s assertions are correct, JP ‘509 still does not disclose or suggest modifying the angle of the peaks/valleys of Heinen to be within the claimed range of 10-35 degrees.

JP ‘509 does not include angled structures similar to the claimed “line portions” that are angled at 10-35 degrees within the circumferential grooves, as recited in independent

independent Claim 1. Instead, JP '509 relates to generating a longitudinal vortex within grooves of a tire (*see e.g.*, Figure 13 of JP '509 and paragraph [0015] of English translation of JP '509) such as by including longitudinal stripes of water repellant rubber 13 that alternate with stripes of tread rubber 12A within the groove (see Figure 1 of JP '509) or by including longitudinally extending ribs 54 (see Figure 9 of JP '509). Since both the stripes 13/12A and the ribs 54 of JP '509 extend along the longitudinal direction of the grooves (i.e., with zero incline relative to the circumferential direction), JP '509 does not disclose or suggest the claimed 10-35 degree incline of independent Claim 1, even assuming *arguendo* that stripes or ribs could be equated with the claimed line portions composed of ridges or recesses.

Further, Applicant also respectfully submits that one of ordinary skill in the art would not have modified the Heinen reference in a manner that forms vortex flow because, as discussed above in Section B, Heinen teaches away from forming vortex flow by teaching the exact opposite – disrupting vortex creation. For example, the Heinen reference teaches that eddies/vortexes both create turbulent flow (col. 3, lines 45-46 and col. 4, lines 7-10), and that such turbulent flow should be reduced/eliminated (col. 4, lines 46-60). Thus, although JP '509 may teach the benefits of breaking up random eddies and creating a longitudinal vortex, such a teaching goes against the principle of Heinen, which is to minimize turbulence by eliminating vortexes/eddies. Accordingly, due to the teaching away found in Heinen, Applicant respectfully submits that one of ordinary skill in the art would not have modified Heinen in the manner suggested by the Examiner.

Thus, for at least the reasons discussed above in this section, Applicant submits that one of ordinary skill in the art would not have modified the Heinen reference such that its peaks/valleys are inclined at 10-35°, as defined in Claim 1, in light of JP '509.

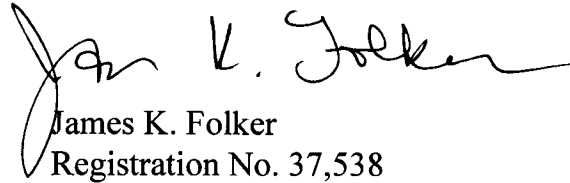
II. CONCLUSION

For all of the above reasons, Applicants respectfully request that the Board reverse the rejection of Claims 1, 3 and 4 as being unpatentable under 35 U.S.C. §103 over the Heinen reference in view of the Shesterkin reference and further in view of the Tomioka et al. reference or the Williams reference and optionally further in view of JP '509.

Respectfully submitted,

GREER, BURNS & CRAIN, LTD.

By



James K. Folker
Registration No. 37,538

December 9, 2008
300 South Wacker Drive, Suite 2500
Chicago, Illinois 60606
Telephone: (312) 360-0080
Facsimile: (312) 360-9315
Customer No. 24978
P:\DOCS\4386\77706\DP9068.DOC

(viii) CLAIMS APPENDIX

The following claims (Claims 1, 3 and 4) are involved in this appeal:

1. A pneumatic tire comprising:

a plurality of circumferential grooves extending in a tire circumferential direction in a tread surface having a width and a circumferential center;

a plurality of lateral grooves extending from the circumferential grooves away from the circumferential center of the tread surface, the lateral grooves being open at their distal ends from the circumferential center of the tread surface and provided intermittently in the tire circumferential direction; and

line portions provided in a wall face of the circumferential grooves, the line portions being composed of a plurality of ridges or recesses that are inclined from 10° to 35° with respect to the tire circumferential direction;

wherein water can flow in the circumferential grooves along the line portions to form a vortex flow, and can be discharged from the circumferential grooves, and

wherein the line portions are provided in a range of not less than 50% of the wall face of the circumferential grooves in a cross section of the circumferential grooves orthogonal to the groove longitudinal direction.

3. The pneumatic tire according to claim 1, wherein a height of the line portions is not smaller than 0.3 mm and is not more than 20% of each of a width and depth of the circumferential grooves.

4. The pneumatic tire according to claim 1, wherein a pitch interval of the line portions is 1.5 to 8.0 mm.

(ix) EVIDENCE APPENDIX

No evidence is submitted by Appellants pursuant to 37 C.F.R. §§1.130, 1.131 or 1.132, or entered by the Examiner and relied upon by Appellants in this appeal.

(x) RELATED PROCEEDINGS APPENDIX

There are no related decisions rendered by a court or the Board in any proceeding pursuant to 37 C.F.R. §41.37(c)(1)(ii).